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ABSTRACT

This practicum was designed to integrate time-efficient methods for teaching sight reading during performance classes. A crucial discovery was that music aptitude comprises both cognitive and perceptual processes. Choral students received music training in the mechanics of note and rhythm reading. Learning occurred through the discovery of correct tempo, rote and emulation concepts, music imaging (audiation), and developing mental presets. Cognitive applications, verbalizing goals and expectations, and the importance of the director's daily dispositions were discussed as vital elements of instruction. After 8 months of training, the lower quartile students raised their average score from 4.5 points to an average score of 16.7 points out of 40 points on the Arizona State Sight-Reading Testing Instrument. The second quartile raised their average score from 7.3 to 18.6 points. The third quartile raised their average score from 11.3 to 25.8 points, while the highest quartile raised their average score from 22.7 points to an average score of 35.7 points. (Author/EH)

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ED 423 193

Integrating Instructional Ear-Training Techniques into a High School Choral Music Performance Class Curriculum to Improve Students' Sight-Reading Skills

by

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A Practicum II Report
Presented to the Ed.D. Program in
Child and Youth Studies in Partial
Fulfillment of the Requirements for the
Degree of Doctor of Education

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PRACTICUM APPROVAL SHEET

This practicum took place as described.

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This practicum report was submitted by Dean Anderson under the direction of the adviser listed below. It was submitted to the Ed.D. Program in Child and Youth Studies and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Nova Southeastern University.

Approved:

12/1/95
Date of Final Approval of Report

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Together, we made a difference in developing a different approach to sight singing in the choral performance classroom. One result was the transformation of great singers into great musicians.

With kindest appreciation, my warmest thank you goes to my accompanist, and assistant, my friend, Jan Hoblit, with whose help and humor made this practicum a real success.

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ABSTRACT

Integrating Instructional Ear-Training Techniques into a High School Choral Music Performance Class Curriculum to Improve Students' Sight-Reading Skills. Anderson, Dean P., 1995: Practicum Report, Nova Southeastern University, Ed.D. Program in Child and Youth Studies. Choral Music/Choir/Music Education/Sight Reading/Music Reading/Choral Reading/Sight Singing/Ear Training/Cognitive Studies.

This practicum was designed to integrate time-efficient methods for teaching sight reading during performance classes. A crucial discovery was that music aptitude comprises both cognitive and perceptual processes. The music aptitude of children relates to the cognitive process and is comprised of cognitive and perceptual processes.

Choral students received music training in the mechanics of note and rhythm reading. Learning occurred through the discovery of correct tempo, rote and emulation concepts, music imaging (audiation), and developing mental presets. Cognitive applications, verbalizing goals and expectations, and the importance of the director's daily disposition were discussed as vital elements of instruction.

With eight months of training, and out of 40 points, the lower quartile students raised their average score from 4.5 points to an average score of 16.7 points on the Arizona State Sight-Reading Testing Instrument. The second quartile raised their average score from 7.3 points to an average score of 18.6 points. The third quartile raised their average score from 11.3 points to an average score of 25.8 points. The highest quartile raised their average score from 22.7 points to an average score of 35.7 points.

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CHAPTER I

INTRODUCTION

Description of Community

The work setting for this project was a metropolitan suburban city of over 125,000 in population located in the Southwestern United States. Over the past 20 years, the entire community evolved from an agriculturally based economy with small-town politics to an industrial high technological mecca and a resort/tourist center with a progressive and visionary city government.

Racial segments of the school community included: 72% White, 21% Hispanic, 6% Black, and 1% other minorities. The community was socioeconomically considered middle-to upper-middle class. The community, however, had a high rate of poverty within the minority population.

Writer's Work Setting and Role

The work setting was a 10th through 12th grade high school of 2,000 students from a district of 15,000 pupils with a racial composition of 69% White, 25% Hispanic, 5% Black and 1% other minorities. The choral music department at the high school, which was the specific setting, was composed of 19% ethnic minority students.

The United States Department of Education cited the school three times in the past 10 years as an exemplary high school. An honor earned by only one other high school in the country. The writer's performing-arts department at the high school was one of five emphasis areas under consideration two years ago in the high school's recognition as the top high school in the state. The choral program, under the direction of the writer, had won numerous awards for excellence, including recognition from the President of the United States at a private White House ceremony.

The writer was directly involved with 103 students who had enrolled for classes in the choral music department at the high school. That number represented all choir students who were enrolled in the developmental choirs where traditional choral literature is sung.

The writer was the Director of Choral Activities at the high school with the primary responsibility for teaching the choral music classes. The writer taught the two choirs used in the project. One choir was an advanced group while the other was a beginning ensemble. The writer acted as the implementor of the project through his duties as the Director of Choral Activities.

CHAPTER II

STUDY OF THE PROBLEM

Problem Description

The situation that needed improvement was the sight-reading ability of high school choral-music students. A state-wide, as well as local, situation existed where students entering high school choir programs had low sight-reading skills.

Problem Documentation

A situation was clearly defined in the research of Gardner (1990) who concluded that children, up to the age of 14, did not have the ability to master sight-reading skills. He continued by stating that students reached that plateau of achievement in tonal memory development and could not develop heightened skills in that area until after the age of 14. Gardner's study may have provided a partial explanation for a state-wide situation in which students entering high school choral music programs had low sight-reading skills. This information concurs with audition results (see Table 1) for 9th-grade choir students seeking placement in the writer's high school choral program. From discussions with other high school directors, the writer's students' sight-reading scores were

representative of what was typical achievement for high school choral-music students in the state.

Table 1

Ninth Grade Choir Sight-Reading Results for May, 1994

School	0-4 points	5-7 points	8-10 points	Total No. of students
A	9	9	3	21
B	7	9	3	19
C	4	7	0	11

The test was based on a maximum of 10 points and administered by the writer. Each point represented 1 measure sung correctly. An evaluation form was used to grade the students on two five-bar phrases. Students who scored 8-10 points qualified for advanced placement in the high school choir program.

Briefly stated then, a problem at the writer's high school was that new high school choral-music students did not have rudimentary sight-reading skills necessary to become accomplished musicians during their high school music career and were not likely to substantially improve those skills through

traditionally administered methods in a performance-orientated class setting. Wagner's (1994) results (Appendix F), showed that five of the writer's high school students qualified for All-State Choir last year (see Table 2).

Table 2

Top 3 High School's And Writer's School's 1994 All-State Choir Participation

School	No. in All-State Choir	No. in choir program	Percent in All-State Choir
A	16	175	9%
B	23	200	11%
C	14	270	5%
D*	5	80	6%

*denotes writer's school

The total number of students in Schools A, B, and C averages 18 students per school. The average number of All-State Choir students per school who participated in the audition process, not including Schools A, B, and C was 1.77 students (see Appendix F).

Table 3

All-State Choir Raw Data Results, 1994

	Soprano	Alto	Tenor	Bass
Number Auditioned	155	152	137	157
Highest Score*	40	40	35	39
Lowest Score	3	6	1	0
Average Score	27	23	35	39

All-State Choir	Soprano	Alto	Tenor	Bass
Total No. Selected	50	51	50	50
Highest Score*	40	40	35	39
Lowest Score	23	18	16	19
Average Score	33	31	26	28
Writer's school student average score	---	32	29	31

*40 points possible

The number of schools that participated for placement through audition was a total of 86. Of that number, 51 schools were represented in the All-State Choir (see Appendix F). The lower half of Table 3 indicates the range of individual scores as well as the average of all singers who qualified for the 1994 All-State Choir. Also, on the lower half of Table 3 is the average scores of the writer's students who were selected to the All-State Choir. The upper half of Table 3 indicates the range of individual scores of every singer who auditioned for the 1994 All-State Choir.

To help verify the existence of a problem, the writer developed a student survey that addressed departmental goals and activities for individual and group improvement for the 1994-1995 school term. The survey was administered to all high school choir students. A review of the survey results showed that of 133 possible responses, 115 indicated a need to improve sight-reading skills. Even though the students had received instruction in sight-reading, the survey showed that a desire to improve sight-reading was present (see Appendix B).

The writer gathered statements from three colleagues who were employed by the writer's district as junior high school choral-music instructors. The three respondents indicated that a problem existed in sight-reading at the junior high school level. The three teachers also felt that poor sight-reading skills negatively impacted the educational experience for choral music students (see Appendix C).

The writer interviewed five top-achieving students about the problem in the high school choral-music program. The results indicated a perception by those students that sight-reading skills were low (see Appendix D).

As part of an audition process, the writer gave sight-reading tests to 52 incoming sophomore students registered for choir classes. Of the 52 auditioned students, 6 students were successful in completing the sight-reading and production criteria for participation in advanced performance classes at the high school (see Table 1). Although the writer's advanced choir was recently rated second of 230 high school choirs by the American Choral Directors Association's adjudication at a national high school choir festival, the writer's students have not shown high individual sight-reading capabilities in Regional or All-State Choir testing (see Appendix F). According to All-State festival statistics over the past two years, three high schools dominated All-State participation with 14, 16, and 23 students. The other 83 schools who participated in auditions for All-State Choir averaged only 1.77 students per school. The information provided by Wagner (1994), together with the writer's personal discouragement concerning the low number of students who successfully auditioned for All-State Choir, prompted the writer to investigate the problem, its causes, and the possible solutions for improving sight-reading scores.

Responses from the directors of the three high schools with the highest participation in All-State Choir (see Appendix E) showed interesting comparisons and contrasts. All three directors of the dominating choirs reported that they used sight-reading skill building for 5 minutes at the beginning of every rehearsal. The three teaching styles varied significantly in approach and content. However, similarities were teaching of reading through melodic, rather than intervalic, methods and the use of occasional choral literature reading. Approximately 30% of their students had been or were involved in private piano study. From one choir, 14 of 25 singers who successfully auditioned for All-State Choir were taking private voice lessons. At the writer's work setting, none of the students were privately studying voice or piano.

The previous information led the writer to believe that effective sight-reading skills, perhaps, were greatly influenced by musical development outside the classroom. In the following section of discussion, Causative Analysis, one study concluded that influences outside of the school, such as private lessons, had a significant impact on a student's overall musicianship. Due to the differing methods of instruction within the three choirs, the methods may or may not have had a significant effect upon the students' development. When students who had taken private piano or voice lessons outside the classroom structure were statistically removed from consideration in the comparison, a smaller difference

occurred when compared with the number of the writer's music students involved in All-State Choir. A comparison of the top schools with participation in All-State Choir was made with consideration to students who were taking private voice lessons (see Table 4). The comparison did not take into account others from Schools A, B, and C who were also taking piano (see Appendix E).

Table 4

Comparison of Top Schools' Students with Writer's school's Students With Consideration to Outside of the Classroom Training

School	No. in All-State	No. taking private voice	Comparison
A	16	9	7
B	23	14	9
C	14	8	6
D*	5	0	5

*denotes writer's school

In an attempt to evaluate the effectiveness of sight-reading instruction in any school music program where higher numbers of students participate in All-

State Choir, future studies may need to look at the number of students who have additional training outside of the choir classroom and how that training influences sight-reading scores.

Causative Analysis

In the writer's setting, junior high students were entering the high school choral program with low sight-reading skills. The writer believed that poor training in the junior high was a cause. From comments by the junior high teachers in the writer's district, no single method of sight-reading instruction seemed to work well for their students' development in sight-reading (see Appendix C). Their dilemma was not unique. Research had shown that in testing a large national sample of 11- to 16-year old students, a significant improvement in tonal memory ability occurred at the age of 14 (Cutietta, 1984; Gardner, 1990). Clearly, students entered high school with limited tonal memory ability.

Research indicated that high school choir teachers did not have or use efficient methods within their curriculum to instruct sight-reading skills as they prepared for performances. McDonald and Simons (1989) found that no compact, time-efficient method of sight-reading training was known to universally facilitate the demands in high school choral-performance classroom settings while developing sight-reading skills of individual singers. To compound

the problem, Schuell (1988) concluded that students lost interest due to poor instructional methods. Planning an effective method of instruction for sight-reading was compiled from prescribed formulas for teaching as gleaned from numerous sources.

Relationships of the Problem to the Literature

Middleton (1984) reported that sight-reading instructional methods in junior and senior high school were inconsistent and results were poor. The responsibility to implement and teach the aspects of sight reading fell upon the classroom music teacher. In the writer's school district, the music teachers used different procedures and time allotments to teach sight reading (see Appendix C). Interestingly, Berg (1984) concluded that influences outside of the school had a significant impact on a student's overall musicianship. Berg found a significant correlation between higher musical achievement and musical home stimulation (which focused on audio and video presence), but also investigated other musical stimulation such as the use of a piano at home. The importance of the study was that it corroborated other studies that showed that influences outside of the school were significant in a student's overall musicianship.

From selected variables for 20 high school choirs, Daniels (1986) concluded that the best indicators of the students' sight-reading ability were

determined not by classroom instruction, but by the following indicators: a piano in the home, location of the high school (rural or urban), the ethnic makeup of the school, and the occasional use of rote procedures in the teaching of music. Daniels looked specifically at socioeconomic and musical backgrounds, and obtained the following correlation from selected factors listed above. Daniels concluded that as affluence increased, so did reading scores. The study showed that music students whose homes had a piano averaged 63% accuracy on sight-reading tests while music students without a piano in the home averaged 32% accuracy on sight-reading tests. Music students in schools with a lower enrollment of minority students averaged 57% accuracy on sight-reading tests while music students in schools with more than half of the enrollment composed of minority students scored 39% on sight-reading tests. It was found that if occasional rote instruction were used in the classroom, sight-reading skills improved.

As a general observation drawn from experiences with absolute pitch during 24 years as a choir teacher, the writer can state that he has had fewer than 10 students who have had natural absolute pitch. While perfect relative pitch could be taught, it is a flawed skill that depends upon memory. However, as the writer had personally experienced, it is a teachable skill. Students with perfect relative pitch had significantly more trouble notating and recalling intervals in a number

of interference situations than did students with absolute pitch (Becket & Byrnes, 1990).

A number of related factors affected good teaching and learning of sight-reading skills. Baldridge (1984), for instance, found that teachers gave less emphasis to music listening skills and separated it from other classroom activity such as singing and performance. That method decreased the effectiveness of sight-reading. Nierman (1985) found that students lacked a fundamental music vocabulary, especially when communicating text, style, and dynamics. In concurrence with that study, it was found that in the writer's school setting, new high school music students lacked a good understanding of technical terminology.

Whitener (1983) concluded that students who were taught through the traditional, choir-performance experience scored lower in determining intervalic relationships and recognizing major and minor keys. Most choirs fell into a traditional setting. Whitener also found that students enrolled in a class specifically dealing with other areas of music study such as theory, history, or piano scored higher in determining intervalic relationships and recognizing major and minor keys. In these areas of study, more time was spent teaching specific listening skills necessary to sight reading.

In elementary schools in the writer's district, the Orff-Kodaly methods were extensively used in Grades K-6. Munsen (1986) concluded that the use of the

music instructional methods of Carl Orff had an increasingly negative impact on students' attitudes toward instructional music after the third grade. Using that research, one could conclude that many students, as they enter junior high school, would not have a positive attitude toward instructional music. If students entered junior high school with negative attitudes toward choral music due to the Orff training in the elementary setting of the writer's local district, the likelihood of the students reaching the maximum plateau of learning before the age of 14 might be hindered. Moving from the junior high setting to the senior high school setting could be more difficult if the development of sight-reading is not nurtured.

Cutietta (1986) and Gardner (1990) found that students did not possess the ability to learn tonal memory skills beyond a specific level until they reached 14 years of age. At the age of 14, it became the responsibility of the high school music teacher to provide opportunities for higher skills development in sight reading. Teachers who did not have an understanding of scientific study in child development as it related to music skill building using imagination did not teach with effective instruction. What limited the instruction of sight reading was that no fully-developed method of music learning existed (McDonald and Simmons, 1989). Therefore, if teachers lacked the ability to develop teaching programs in sight reading, students would need to find outside assistance. However, Fowler

(1988) contradictorily stated that proper sequential learning provided applicable methods for the teaching of music.

Gordon (1979) compared musical age to mental age in describing the level of student readiness to become involved in musical experiences. A teacher who did not synchronize or match the level of musical instruction to the students' musical age or readiness did not have effective learning take place. New learning did not take place unless the student had an adequate mastery of essential skills (Gubrud and Novak, 1973). Bruner (1966) stated that the manner in which sequential learning was conducted affected a student's mastery of music.

In determining proper sequential learning as applied to sight-reading skills, the writer discovered that Gordon (1988) developed a two-dimensional hierarchy system for music. Gordon compared his system to Piaget's (sensorimotor and preoperational periods preceding concrete and formal operations) and to Gagne's (response, verbal association, and discrimination preceding concept and principle learning) studies in which tonal instruction was taught separately from rhythm instruction and learning of content (materials) was taught before musical skill development.

As it pertains to the writer's work setting, Wagner's (1994) All-State Choir data (see Appendix F) was the most relevant evidence that the problem existed locally. Due to the large number of low scores, it indicated that most schools

were using ineffective methods to overcome the students' poor sight-reading skills.

The three high schools that were successful in qualifying more students for All-State Choir may also have had similar problems in sight-reading. The data showed that the larger music student enrollments of the top three schools were proportionate in percentage to other choirs' All-State participation (see Table 2, Appendix F). Specifically, Wagner's (1994) data showed that a higher participation from the three model schools was proportionate to the choral department of the writer's school when the data was viewed in Table 4 and in Appendix E. The figures indicated that 30% of all music students in the top music schools participated in private voice or piano instruction and of those schools, more than half of the students taking private voice lessons were successful in auditioning for All-State Choir. One may begin to question whether the sight-reading programs in those schools made any difference in state sight-reading test outcomes.

CHAPTER III

ANTICIPATED OUTCOMES AND EVALUATION INSTRUMENTS

Goals and Expectations

The primary goal was that in the writer's high school, students' sight-reading ability would increase. The secondary goal was to have more students involved in the Regional Choir as a result of increased sight-reading ability.

Expected Outcomes

By developing a time-efficient sight-singing curriculum integrated into the choral-music performance curriculum for an 8-month duration, the writer expected to improve sight-reading scores by 10 points for each level of competency:

1. The 19 students who scored 0-5 points on the preliminary test would increase their results by scoring 10-15 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program.

2. The 40 students who scored 6-10 points on the preliminary test would increase their results by scoring 16-20 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program.

3. The 15 students who scored 11-15 points on the preliminary test would increase their results by scoring 21-25 points of the 40 posisible points on the Arizona State Testing Instrument at the completion of the program.

4. The 13 students who scored 16-20 points on the preliminary test would increase their results by scoring 26-30 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program.

5. The 13 students who scored 21-25 points on the preliminary test would increase their results by scoring 31-35 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program.

6. The 3 students who scored 26-30 points on the preliminary test would increase their results by scoring 36-40 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program.

Measurement of Outcomes

Each student was tested and tracked on a monthly basis using the Arizona State Testing Instruments (see Appendix A). At the end of the second month, 26 high school choir students participated in the state sponsored Regional Choir test. All students who successfully passed the test and qualified for the Regional Choir had the opportunity to take the All-State Choir sight-reading test in the third month of the program. All high school choir students used either a Regional

Choir or All-State Choir sight-reading testing instrument every 4 weeks. During the final two months of the project, the instructor continued to use the same plan of implementation with a voluntary group of 12 students. In that setting with the smaller number of students, a comparison was made from their final sight-reading scores with their previous scores (see Table 7).

Students' scores were tallied from the Individual Testing Instrument Scoring Form (see Appendix H). Adjudication comments concerning sight singing covered four areas: (a) starting pitch, (b) intervals, (c) rhythms, and (d) interruption of metrical flow (pausing at barlines).

CHAPTER IV

SOLUTION STRATEGY

Discussion and Evaluation of Possible Solutions

In casual conversations with colleagues, a reoccurring comment seemed to arise when the subject of sight reading entered the discussion. A convenient solution for ear training was stated, "Just do it!" Though that advise may be true enough, the next question should be, "Do what?" Indeed, Baldridge (1984) stated that when sight reading and listening were incorporated into the everyday structure of the performance choir class, more sight reading and listening instruction occurred. The concept of "just do it" should not be underrated. The next question, "Do what?" has stumped many music teachers. To find an efficient method for sight-reading instruction that would significantly and quickly increase students' abilities in sight reading was the underlying concern of this project. The writer incorporated the work of a number of authors of child development and sight reading to develop a universal approach to sight reading for two performance-oriented classes in his work setting.

To find possible solutions, the writer first looked at Seashore's (1938) study that involved the mental presets, or auditory imaging necessary for completing any musical task. Seashore's study revealed an approach that was applicable to

any musical task. Seashore's study revealed an approach that was applicable to sight singing. Seashore's study was more recently supported by Gordon (1987) who defined mental presets as the ability to mentally hear sounds that are stored in memory. Gordon concluded that audiation was essential in recognizing pitch relations. A basis for developing a sequential music-reading program was formed from the literature review which revealed that if sight-reading instruction were to be universally applied, an objective method was needed to develop student learning.

In a review of over 150 sources, the writer found no choral-music reading program that included mental preparation and visualizing as an essential requisite. Stockton (1983) corroborated that point by stating that no single method of teaching sight-reading and choral instruction was widely accepted. Corbin (1982) concluded that choral rehearsal techniques seemed to be subjectively based, thereby, no single technique was better than any other. Gonzo (1973) stated that choral curriculum had not changed in 60 years. Though Gonzo's report is 21 years old, it is the writer's observation that since his report, very little has changed.

Several authors pointed out numerous pitfalls to implementing a sight-reading program. Computer drill programs were not effective for students in identifying notes (Willet and Netusil, 1989). Teaching intervalically rather than

melodically did not assist to improve sight reading (Lowder, 1973). Teachers who used notational schemes to teach provided no improvement in their students' music-reading test scores (Byo, 1988).

In one of the successful choirs in Arizona included in this study, hand signals were claimed to have made a significant difference in learning, where in the other two successful choirs, no hand signals were used in instruction (see Appendix E). The research did not support the use of hand signs. Salzburg and Wang (1989) stated that hand signs and body movements as used in Kodaly instruction had no effect on improvement in sight singing.

In a study of children and music as it related to the cognitive process, Karma (1985, 1986) concluded that music aptitude comprised both cognitive and perceptual processes. That study was in agreement with Gordon's (1986, 1987) studies that were previously cited in this proposal. As had been shown, other authors supported Seashore's premise and have concluded that audiation and mental practice and preparation increased reading skills. Therefore, the practice of audiation became central to learning in all instruction for this project.

The importance of having students read by sight at set tempos was not discussed at any great length by many authors. However, the writer considered specific tempo markings on choral scores, and concluded that tempo had an effect on learning choral scores. A tempo range lying between 100 to 240 MM provided

the high effectiveness in melodic memory and error detection (Tunks, Bowers and Eagle, 1990). Furthermore, as the project incorporated specific tempo, the effect of using tonal-rhythmic exercises became important to learning. Fiske (1982) and Schellenberg (1985) stated that having students practice tonal-rhythmic exercises enhanced short-term music memory for both pitch and rhythm.

The question of using text or syllabic tones in reading was addressed. Colley (1987) and Shehan (1987) found that a strong pedagogical teaching method for learning music-reading skills incorporated the use of syllables. In using syllables, tonal pattern instruction was found to be an excellent method for increasing melodic sight reading (Grutzmacher, 1987).

Demonstration tapes with accurate 4-part voicing were found to be useful to improve music-reading skills (Barnes, 1964; Kanable, 1969; Puopolo, 1971; Owen, 1973; Heim, 1976). The Puopolo (1971) study showed that students who were not given tape recorded materials for individual sight-reading instruction scored lower than students who were given supplemental tape-recorded material. The writer relied on 22 taped examples of sight-reading and written material that followed the Regional and All-State testing format.

One factor not associated with the content of the teaching material, but vital to the learning process, was the interest and involvement level of the instructor. Several studies showed that lessons must be taught with personal involvement

and dedication. The teacher could not be emotionally, mentally, or physically detached from the class activity. Teachers who taught without intensity inhibited musical growth for students (Madsen, Standley, and Cassidy, 1989). Schmidt (1989) similarly concluded that a teacher's personality had a significant influence on music learning. Yarborough (1981) determined that the intensity of the music instruction shown through the teacher's facial expressions, gesture and vocal inflection paralleled the depth of the students' involvement. Joyce and Weil (1986) found that choral directors who promoted personal interaction between themselves and the students built cooperative problem-solving skills, thereby, increasing the students' understanding and involvement in the subject.

Sight-reading activities were a regular part of the daily learning process. The writer used the beginning of the performance class to teach sight-reading skills. Reading of music scores improved if sight-reading practice occurred before any regular classroom rehearsal activities were begun (Hewson, 1966). Musical activities which involved creativity, listening, performing, or composing improved the reading of music scores (Bradley, 1974).

One of the areas that choral directors overlook was mental preparation before phonation occurred. Kohut (1985) and Gordon (1987) articulated the concept that utilized mental imagery as a method of improving musicianship. Using the technique of mental presets blocked out distractions that might have

otherwise interfered with musical activity (Reubart, 1985). Coffman (1987) demonstrated that students with minimal mental presets improved at a slower rate than students who mentally practiced. Trusheim (1987) concluded that imaging before actual practice improved performance when compared to musicians who did not mentally practice.

As a curriculum implementation, Stockton (1983) used a rote performance method of a rhythm-learning sequence in a control group and concluded that the method was superior to lecture and demonstration methods. Occasional use of rote procedures to teach music increased the students' ability to read music (Daniels, 1986). Shehan (1987) also used a blend of rote learning and note instruction and concluded that it provided the best retention among high school students.

Other authors developed classroom techniques to best utilize time. The study by Price (1989) took a three-step sequence in music instruction: (a) teacher presented task, (b) students interacted with teacher or task, (c) teacher gave feedback. The author found that this procedure resulted in better use of class time, and, subsequently, learning time. Using another instructional method, Scheull (1988) found that if an omission of knowledge occurred in a developmental sequence, mastery and students' interest was lost. His conclusions

showed that rudiments of the subject needed to be understood before advanced information could be presented.

An important revelation presented by Gardner (1990) was that children were simply not able to learn advanced sight-reading skills until they had reached senior high school age. He stated that high-level musical development could not occur until after the age of 14 years and that the development must occur within a framework of logical sequencing. The high school music experience was perfect for higher-level skills development.

Whitener (1983) concluded that students who were taught through a structure of theory, music reading, piano, or similar-type framework, rather than a choir performance class, scored higher in determining intervalic relationships and recognizing major and minor modal keys. Walters (1988) used introduction, application, and reinforcement, a "Whole-Part-Whole" learning process, that resulted from the coordination of learning sequence activities and music classroom activities. The instructor incorporated a technical and sequential method into the traditional music performance situation.

In the classroom setting, instructors began using means other than lecture to enhance classroom lessons. As newer technology allowed, music teachers began to use technological peripherals as teaching aids. Michelson (1984) demonstrated that by using video-tape instruction together with lecture methods, the students'

retention level was improved greatly. Higgins (1989) found that the use of high-technology hardware such a pitch-to-MIDI converters made little difference toward students' improvement in computer-aided sight-singing instruction.

Some research favorably pointed to music students who had a high interest in music appreciation and sight-reading achievement. Students with two years of music theory did better in sight reading than did students with one year of music theory (Hansen, 1961). Higher level students in music theory had better sight-reading skills than lower level students in theory (Gonzo, 1971). In another report, there were conflicting findings. Brand and Burnsed (1981) found no relationship between students' error detecting skills and level of achievement in music theory or sight reading.

Description of Solution Selected

The writer developed a music sight-reading program for high school choir students based on the following applications:

The literature reviewed supported the concept that a successful sight-singing program involved knowledge before application (Gordon, 1988; Scheull, 1988). Students understood the generally accepted basics of music competency: counting rhythm, intervals, key centers, time signatures, scales and notation (Lowder, 1973; Fiske, 1982; Stockton, 1983; Nierman, 1985; Schellenberg, 1985;

Byo, 1988; Willet and Netusil, 1989; Madsen and Geringer, 1990; Tunks, Bowers and Eagle, 1990).

The application was presented in a sequential and logical manner (Gordon, 1987; Walters, 1988). The writer used a sequential presentation of the material. The writer provided 5 minutes each day at the beginning of class for 6 months in each of the two choirs to provide the necessary time required to implement the educational experiment. That was followed for two additional months with a smaller group for comparative results. Lessons in sight-reading skills were taught every day at the beginning of the class period following warm-up vocal production exercises. The lessons were taught separately from performance tasks and integrated into the total lesson (Hewson, 1966). The writer grouped subject material into weekly segments covering specific areas of study.

Musical imaging was used extensively. Mental presets were used to block out distractions (Seashore, 1938; Kohut, 1985; Reubart, 1985; Coffman, 1987; Gordon, 1987; Trusheim, 1987). The teacher used methods involving mental presets, which included a time to audiate pitches, and used formulated concepts of tonal memory through a learning sequence. Moments of silence provided quiet time for students to listen and mentally imagine pitch during most reading skill activities (Karma, 1985, 1986). Then, the application of the lesson was introduced through the singing of songs.

The teacher interacted with intensity and with a positive personality (Schmidt, 1989). The instructor's daily enthusiastic expectations for the class were as important as class management and teaching material (Yarborough and Price, 1981; Joyce and Weil, 1986; Madsen, Standley, and Cassidy, 1989).

Listening exercises and rote/note patterns were used in developing an effective sight-singing program (Stockton, 1983; Daniels, 1986; Shehan, 1987). Specifically, the use of syllabic tones in a melodic, rather than vertical, style when reading were used. Exercises included the use of neutral vowels, syllabic sounds and/or step numbering (1, 2, 3, etc.) in major and minor melodic and intervalic exercises (Colley, 1987; Grutzmacher, 1987; Shehan, 1987). While the instructor used rote demonstration in rhythm skill building, all sight-reading skills development occurred at a tempo near 160 MM (Tunks, Bowers and Eagle, 1990).

Tapes and singing with others during instruction time were used to increase music reading ability (Barnes, 1964; Kanable, 1969; Puopolo, 1971; Owen, 1973; Heim, 1976). The writer provided 22 four-track test and pretest recordings, paper supplies, and other materials required for sight-reading skills development.

In an attempt to develop perfect relative pitch, the teacher used the same key each day when starting vocal production exercises as the vehicle for the

memory testing development of perfect relative pitch at the conclusion of the project (Beckett and Byrnes, 1990).

During winter break, students were given a one-hour taped lesson to be completed at home. Those lessons were scheduled for weeks 3 and 4.

A major part of the solution included the development of a music-reading curriculum that was functional and addressed the presumption that students entering the high school choral program were, for the first time, ready to develop high-level tonal memory skills (Cutietta, 1984; Gardner, 1990).

The writer documented the implementation process through a weekly lesson plan. Strategies were built through specific activities indicated on the schedule. Activities were taught by the writer to the two developmental choirs, advanced and beginning, incorporating a total of 103 singers.

Report of Action Taken

The following organizational plan was the weekly schedule which incorporated theories of implementation as promoted by the authors and the writer. During the 1st week, a pretest was administered to 103 choir students. For the pretest, the students were told to listen to the taped instructions during the testing process. No other guidance was given. The instructor used the 1991 Arizona sight-reading testing instrument (Appendix A) which had three measures

of rest in the contrapuntal section. Students earned 3 points if they did not sing during the three measures of rest. The Regional testing instrument allowed students to obtain a minimum score of 3 if they were silent during the entire test. A pretest score of 3 points seemingly gave students an unearned bonus in scoring, but the testing instrument was representative of subsequent state testing instruments used. If the 1991 Regional test were given later in the study, it may have shown a false increase in development. No students scored below 3 points on the pretest. For the writer's purpose, the minimum score allowed a numeral base for all data entries that followed. To begin the program, an introduction to names of staves and names of notes on staff (drills and work sheets) were given. As an introduction to rhythm, eighth-note values and half-note values with corresponding rests were sung, shown, and visualized by the teacher and students.

During the 2nd week, unison, major and minor second intervals were identified, listened to, shown on staff, and sung in syllables. Group notation of names of notes on staffs were introduced; 4/4 and 3/4 time signatures were shown and identified. Quarter-note values with corresponding rests were sung, shown, and visualized. The teacher "walked" the students through a sight-reading test using a state testing instrument. It was noted that all exercises were at 120-160 MM tempo. Choristers signed up for individual sight-reading tests which were given after class during week five.

During the 3rd week, which was the first week of winter vacation break, students used a one-hour pre-recorded review at home. A non-graded quiz on names of notes were given to take home. Study would continue into week four.

During the 4th week, which was the second week of winter vacation break, students continued to use the one-hour pre-recorded review at home. The tape included a review of the testing procedure as well as scale exercises and major and minor triad identification. Rote/note and rhythmic chanting was included. Students logged their individual time for the two-week holiday break.

During the 5th week, the students reviewed two scores of a state-issued sight-reading testing instrument. The instructor addressed key areas of attention. Students were given an introduction to major and minor triads through audiation, visualization, and vocalization. Students sang major and minor scales by rote. Students reviewed the major and minor second intervals with diatonic melody and reviewed the major and minor scales by singing them. The class used an exercise in which they found and sang designated notes within the chord. A sight-reading test was given to all choir members from a tape recording containing prerecorded instructions and quartet-minus-one-voice singing. The format of the testing instrument was identical every month (preset).

During the 6th week, a non-graded quiz was given on names of notes. Students reviewed the major and minor second within a diatonic melody. An

introduction of major and minor third intervals were given. Students listened to, visualized, and compared the major and minor scales that were given. Students reviewed the major and minor second intervals and sang the major and minor scales.

During the 7th week, an introduction of whole-note and dotted quarter-note/eighth-note rhythm with corresponding rests using diatonic syllabic and melodic scales (major and minor) were given. The find-your-note-in-the-chord drill was used. Students signed up for the sight-singing test to be given during week eight. Students who were auditioning for regional choir were allowed to sign up for additional regional choir pretesting time with tapes.

During the 8th week, which is the week of regional choir auditions, the time was used for students' review of basics. Mental presets were reviewed. Mental practice was exercised. Students sang scales and triads while listening to major and minor differences. Students sang all intervalic steps. Students formed quartets for the find-your-note-in-the-chord drill. The monthly sight-singing test was administered to those who were not auditioning for Regional Choir. A review of rhythmic scales from the previous week was given. Students who were auditioning for regional choir sang their prepared solos in class. Students who were auditioning for regional choir were allowed to sign up for additional

regional choir time for pretesting with tape recordings. The monthly sight-singing test was administered for those not participating in regional auditions.

During the 9th week, the instructor reviewed the scores of the sight-reading tests addressing areas where the class needed more emphasis. A non-graded quiz on names of notes was given. Rote clapping rhythms were used. A multiple choice quiz on notation of rhythm and melody was given. Students sang the major and minor scales. The results from Regional Choir testing were very successful. Our choir placed 14 students in the 100-voice choir. That number was the highest participation in the last 15-20 years for our school.

During the 10th week, a review of seconds, thirds, fourths, and fifths was given. Students sang the major and minor scales and triads. Rote rhythm clapping was used. Students formed quartets and used the find-your-note-in-the-chord drill.

During the 11th week, the instructor provided pretest and application information for the test for the following week. Major and minor scale dictation was given. Rote note and rhythmic chanting was used. Students signed up for next week's testing. Students formed quartets for the find-your-note-in-the-chord drill.

During 12th week, the monthly sight-singing test was administered. Students reviewed cadence sounds and identified them in their repertoire. As an

introduction, the major sixth interval was listened to, sung and notated for visual observation. Students sang the major and minor scales. An introduction of cadences (IV-I, plagal and V-I, authentic) and intervals of the fourth and fifth was given.

During the 13th week, the instructor reviewed the students' scores of the sight-reading tests and addressed areas where the class needed more emphasis. Students read melodic diatonic scales in quarter-note patterns with corresponding rests and reviewed key signatures. Students sang the major and minor scales. Students took home sight-singing review tapes and sheets.

During the 14th week, the students identified vocal production warm-up chords as major or minor with the seventh added to the harmonic structure, sang the major and minor scales, and notated an eight-note scale as major, then as minor.

During the 15th week, students sang major and minor scales by rote. Students reviewed the major and minor second intervals with diatonic melody and reviewed the major and minor scales by singing them. A review of cadences (IV-I, plagal and V-I, authentic) and intervals of the fourth and fifth was given. Students reviewed the following intervals: unison, second, third, fourth, fifth, sixth, and seventh. The students reviewed the major and minor triads and sang the major and minor scales. Students sang melodic patterns using quarter notes,

eighth notes, half notes and corresponding rests. Students formed quartets for the find-your-note-in-the-chord drill.

During the 16th week, which was the week of All-State choir auditions, students reviewed basic studies. Mental presets were reviewed for intervals and triads. Mental imaging was exercised. Students sang scales. Students sang triads while listening to major and minor differences. Students sang all interval steps. Students formed quartets for the find-your-note-in-the-chord drill. Students who were auditioning for All-State choir performed their individual solos in class. The instructor allowed students who were auditioning for All-State choir to sign up for additional All-State choir pretesting time with the tapes. The monthly sight-singing test was administered for those not participating in auditions.

During the 17th week, the instructor reviewed the scores of the sight-reading tests and spoke to specific reading problems with the class. Students who were auditioning for All-State Choir were allowed to sign up for additional pretesting time with tapes. Students reviewed specific basics: 4/4 time signature, 3/4 time signature, and rhythm values. Rote/note and rhythmic chant was used. The class read six-measure exercises daily. Students formed quartets for the find-your-note-in-the-chord drill.

During the 18th week through the 20th week, the class read six-measure exercises daily. Rote/note and rhythmic chant exercises were used. Major and

minor recognition exercises were given. Using a video for demonstration, the class participated in exercises involving relative and parallel minor keys. Students rehearsed state procedures and were drilled on sight-singing state testing examples (see Appendix A). Mental presets were reviewed for interval training. Mental practice was exercised (imaging). Students sang all interval steps. Students, again, formed quartets for the find-your-note-in-the-chord drill. The monthly sight-singing test was administered. The students reviewed the major and minor triads and sang the major and minor scales. Students sang melodic patterns using quarter notes, eighth notes, half notes and corresponding rests.

During the 21st week, the instructor reviewed the scores of the sight-reading tests and addressed areas where the class needs more emphasis. Block/contrapuntal reading was used. The instructor guided the choir through a choral-reading method involving the following steps: (a) the choir silently reviewed the new score for 2 minutes, (b) the instructor spoke to the choir on different areas that would need attention when reading the score, (c) the choir listened to the accompanist play the score, (d) the instructor spoke to the choir, again, on different areas that would need attention when reading the score, (e) the choir sang the score using a neutral syllable--no words, (f) the instructor gave final instructions to the choir, and (g) the choir read the score. This procedure was entitled the Wisconsin Method and it was used twice during this week.

During the 22nd week through the 24th week, the class read single-line tonal memory patterns using the rote and rhythm method and students were given a quiz on all major key signatures. The class used imaging methods during reading. Warm ups had started in the key of C Major all year. At the start of class to informally test the students' perfect relative pitch development and tonal memory skill, students attempted to sing the tonic of C Major without first having it sounded for them. The instructor took the choir through the Wisconsin Method twice. An emphasis on cadence and interval relationships was reviewed. Block and contrapuntal reading exercises were given. Students rehearsed procedures for the sight-reading test, reviewed a testing instrument, and were given the final sight-singing test.

During the 25th week through the 30th week, the instructor worked individually with a volunteer-group of 12 students for the purpose of determining results from a smaller population. The students were given individual state tests for review with tapes. A review of the 30-week training was given to each student during four-15 minute sessions. Areas of study were determined by individual needs.

During the 31st week, which was the last week of student study, full implementation of imaging and mental presets was used. Students met as a group and formed quartets for the find-your-note-in-the-chord drill. Rhythm and tonal

note patterns were reviewed. Students reviewed major and minor key and scale relationships through group vocalization. All students signed up for final sight-singing tests. During the 32nd week, there was no review of materials. The final week was used for testing.

CHAPTER V

RESULTS, DISCUSSION AND RECOMMENDATIONS

Results

Increases between pretest scores and high scores were evident for all students. While some students showed only moderate growth, in most cases, increases from individual students' pretest scores to the highest scores were dramatic (see Appendix G). Of 103 students, all students increased their reading skills. The results indicated that 83 of 103 students met or exceeded the expected outcomes (see Table 5).

The primary outcome was that in the writer's high school, students' sight-reading ability would improve by 10 points for each level of competency over the period of study. Table 5 on page 42 includes each expected outcome and result.

The first expected outcome was that the 19 students who scored 0-5 points on the pretest would increase their results by scoring 10-15 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program. All 19 students in this group were successful in meeting or exceeding the expected outcome. These students initially were the poorest sight readers in the choir. Most of the students were first year students in the high school choir

program and had little sight-reading experience. The opportunity of musical growth was very high and the dramatic increases demonstrated that growth during the 8-month training period.

Table 5

Results of Expected Outcomes

Outcome	Pretest Scoring Range	Outcome Scoring Range	No. of students tested	No. of students			Mean Gain Score
				failed	met	exceeded	
1	0-5	10-15	19	0	5	14	14.42
2	6-10	16-20	40	13	12	15	12.05
3	11-15	21-25	15	3	6	6	13.60
4	16-20	26-30	13	2	4	7	13.31
5	21-25	31-35	13	1	4	8	12.15
6	26-30	36-40	3	1	2	0	7.33

The second expected outcome stated that the 40 students who scored 6-10 points on the pretest would increase their results by scoring 16-20 points of the 40 possible points on the Arizona State Testing Instrument (Appendix A) at the

completion of the program. As Table 5 indicates on page 42, more students were in this pretest group than any other pretest group. Although 13 students failed to meet the expected outcome, 27 students met or exceeded the expected outcome. The lower success rate in outcome achievement for the 13 students was due to the students' personal lack of desire to succeed and the instructor's inability to sufficiently motivate those 13 students.

When the statistics for the first and second outcomes are combined, it shows that 59 of 103 students scored poorly on the pretest, scoring 10 or fewer points of 40 possible points. Frequent exposure to the testing instruments, together with regular sight-reading training seemed to provide this group with the greatest opportunity to succeed or fail. Of the 59 students, 46 students met or exceeded the expected outcomes.

For the following outcomes, 3-6, it is clear to the writer that the higher pretest scores demonstrated a greater working knowledge of the sight-reading process for those students. Of the 44 students in pretest groups 3-6, 37 were successful in meeting or exceeding the expected outcomes.

The third expected outcome stated that the 15 students who scored 11-15 points on the pretest would increase their results by scoring 21-25 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program. Of the 15 students, 12 students met or exceeded the expected outcomes.

The fourth expected outcome stated that the 13 students who scored 16-20 points on the pretest would increase their results by scoring 26-30 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program. Of the 13 students, 11 students met or exceeded the expected outcomes.

The fifth outcome stated that the 13 students who scored 21-25 points on the pretest would increase their results by scoring 31-35 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program. Of the 13 students, 12 students met or exceeded the expected outcomes.

The sixth outcome stated that the 3 students who scored 26-30 points on the pretest would increase their results by scoring 36-40 points of the 40 possible points on the Arizona State Testing Instrument at the completion of the program. Of the 3 students, 2 students met the expected outcomes.

The mean gain score indicated significant improvement for students in each outcome group. That was particularly true for outcome groups 1-5 where the mean gain scores ranged from 12.05 to 14.42 points. It should be noted that students in outcome groups 1-5 scored 0-25 points of 40 points on their pretest and had the opportunity for exceptional increases. The mean gain score for outcome group 6 was 7.33 points. The prospect for a double-digit increase for outcome group 6 was small due to the students' high pretest scores.

Of the 103 students, 83 students met or exceeded the expected results. The number of students who failed to reach the expected outcomes was 20 of 103 students. The students who were not successful in raising their testing scores to the next level were, however, successful in increasing their individual scores by 5-9 points.

As a side note, 14 students successfully auditioned for the 1995 Regional Choir. Fourteen was the highest number of students to represent the writer's school in the last 15-20 years. The 14 students' scores increased from pretest to the Regional Choir auditions (see Table 6). Eight weeks of study preceded the students' Regional Choir testing. The writer was unable to present conclusive evidence of the sight-reading project as it related to the All-State Choir audition results. Six of the 14 students did not participate in the auditions due to illness. Of the remaining 8 students who auditioned for the All-State Choir, 3 students were also suffering from illnesses. Of the 5 healthy students, 3 students successfully auditioned for Choir. The 3 student participants from the writer's school represented a lower number of singers for All-State Choir than the previous year. The missed opportunity, All-State Choir experience, proved to be disappointing for the students and the writer. However, the Regional Choir audition results and the documentation of in-school student tests provided sufficient data for the project and supported the project's success.

Table 6

Comparison of Pretest and Regional Choir Scores for Writer's Students

Student	Pretest	Regional Choir Score	Increase
1	17	27	10
2	23	29	6
3	23	35	12
4	28	29	1
5	25	32	7
6	24	34	10
7	14	28	14
8	23	28	5
9	30	33	3
10	24	38	14
11	18	33	17
12	29	34	5
13	24	26	2
14	23	33	10

Table 7

Volunteer Students' Individual 2-Month Scores

Student	Pretest	Previous High Score	Test 8	Test 9	2-Month Increase
1	3	15	16	14	1
2	3	16	15	14	-1
3	24	38	35	31	-3
4	6	21	22	24	3
5	4	18	20	17	2
6	6	16	14	16	0
7	6	14	16	15	2
8	3	24	23	25	1
9	3	14	13	15	1
10	6	22	24	25	3
11	6	20	21	24	4
12	3	14	15	13	1

Although Whitener (1983) concluded that students who were taught through the traditional, choir-performance experience scored lower in determining

intervalic relationships and recognizing major and minor keys, the writer used traditional and untraditional methods in developing an effective choral sight-reading curriculum. However, because the writer's choirs fell into the traditional setting that Whitener describes, the writer used a small group of students from the choir to determine whether those students would increase their reading scores outside of a traditional choral setting.

The instructor used 12 students for intensified instruction for 2 months at the conclusion of the school year. A 12-member group met with the instructor for two 15-minute sessions per week for 2 months. To support the writer's altered class-time management design, it should be noted that Whitener's (1983) study also found that students who enrolled in a class specifically dealing with other areas of music study such as theory, history, or piano scored higher in determining intervalic relationships and recognizing major and minor keys. In these areas of study, more time was spent teaching specific listening skills necessary to sight reading.

The instructor asked students to volunteer for continued sight-reading training during the summer. It should be noted that all the members of the small group had previous exceeded expected outcomes during the school year. Except for one group member, these students were initially among the least proficient sight readers in the choir. The students in the small group were first year students

in the high school choir program. Of the 12 students, 9 students were successful in increasing their individual scores. Three students did not show an increase during the final 2 months. The primary reason cited by those 3 students for their stagnation or regression in test scores was a lack of interest to work as hard as they did during the school year. For the 9 students who increased their scores, the reasons cited included their desire to continuously improve, the specialized instruction, a commitment to the group, and a hope to be in Regional and All-State Choirs next year.

From Table 7 on page 47, results show that 5 students increased their scores by two or more points. Four students increased their scores by 1 point. Two students' scores decreased from their previous high score.. One student showed no increase or decrease. Student identification numbers 1-12 in Table 7 coincide with the student identification numbers in Appendix G.

Discussion

The increases in the students' sight-reading scores were dramatic as the instructor maintained a daily routine of skills applications. The sight-reading lessons were an integrated part of the music performance classes. To provide motivation, the students' sight-reading scores were part of the grading procedure. The letter grade provided incentive for the students to follow through with after-

school testing. Most students became very aware of their progress. A grading chart in the classroom displayed test increases. Students were determined to continually improve their individual scores.

One of the most interesting observations was that the scores over the first 8-week period showed the most dramatic increases. Although students achieved their highest scores during the final two weeks of the program, the greatest single gain occurred between the pretest and the 4-week test. The second largest change in individual scores was between the 4-week test and the 8-week test. During those two months, basic information was given and introductory material to music-reading was taught. When that was coupled with a 2-week vacation period during which only indirect instruction was provided, it was important to look to other factors for an explanation. Students' comments revealed that by the second test, students were familiar with the testing process and had less anxiety about the tests. The instructor used Arizona State Testing Instruments during the teaching process. (Any testing instrument which was used as a teaching vehicle was never used in the recording procedure.) In part, the instant familiarity of the testing instrument and thorough explanation of the testing process aided in the preparation for the 4th week test and 8th week test. Perhaps, the explanation may be from the study presented by Gardner (1990) where he stated that children were simply not able to learn advanced sight-reading skills until they had reached

senior high school age. He stated that high-level musical development occurred after the age of 14 years and that the development needed to occur within a framework of logical sequencing. The high school music experience was perfect for higher-level skills development. It was not surprising that there was an immediate burst of learning, then a leveling and steady growth of skills development as was indicated by the test scores (see Appendix G). Indeed, during the next four tests, increases were steady, but hardly as dramatic as in the first 2-month period.

The 12 students who participated in the final two tests were volunteers. No additional materials were taught, but the intensity of the review was high. Students were required to attend two-15 minute sessions per week for two months. All students were successful in meeting their scheduled commitments. The increases were minimal except for three students who improved by 3 and 4 points. One student who had previously scored 38 of 40 points showed a decrease of 3 points on the first test and an additional decrease of 4 points on the final test.

As sight-reading skills were taught, the instructor used a learning process based on Seashore's (1938) study that involved the mental presets, or auditory imaging, as a necessary means for completing musical tasks including sight singing. To reiterate, using mental presets allows students to mentally hear sounds that are stored in memory. The instructor's methodology incorporating

momentary silence and contemplation of pitches and intervals provided more accurate singing. The instructor's method followed Gordon's (1988) conclusion that audiation was essential in recognizing pitch relations. The weekly objectively based music-reading program was sequential and objective in its implementation. Subjective teaching had no place in sight-reading studies. In recalling Corbin's (1982) conclusion that no single technique was any better than any other due to its subjectiveness, the instructor meticulously followed an objective and detailed plan of daily instruction.

The instructor regularly taught interval relations as melodic patterns, rather than vertically. Pitches were taught as melodies and measures of song. That approach was supported by Lowder (1973) and later by Byo (1988).

If students were having a great deal of difficulty reading a part during choral instruction, the instructor had the accompanist play the part. Frequently, the instructor would have the choir clap the rhythmic patterns, then sing. Students learned that the rhythmic motif of a particular section set a pattern for the melody to follow. The singers improved their melodic singing immediately on those particular lessons. It was also found that as occasional rote instruction was used in the classroom, sight-reading skills improved.

The research indicated that the use of tape recordings enhanced sight-reading ability. Twenty-two 4-track (4-voice part) recordings used during

instruction time increased music familiarity with the testing process. Tape recordings were also a valuable asset during winter break when students were given a one-hour taped lesson to be completed at home. As much as recordings were helpful, the writer would like to caution choir directors that commercial tape accompaniments with added voices can easily become crutches of dependency rather than an enablers of learning.

In an attempt to develop perfect relative pitch, the teacher used the key of C Major each day when starting vocal production exercises. It served as a vehicle for testing tonal memory development. Of 103 students, 16 were able to duplicate the tonic pitch within 20 vibrations per second and without assistance; 24 students were able to phonate within 30-80 vibrations per second of the tonic pitch. That was certainly a successful outcome in testing tonal memory development.

Recommendations

To my colleagues who say, "Just do it!" as they refer to sight-reading training in the performance classroom--you are absolutely correct. But, the answer fully lies in what to do. There were many factors in developing the methodology.

(1) The instructor must be diligent in allowing 5-10 minutes every day for warm-ups and sight-reading training. If sight singing does not become part of the daily routine, it will not be productive.

(2) It was imperative to teach everything through music imaging and mental presets: silence, thinking, then singing. The instructor believed that the practice of audiation was central in the students' learning process and was essential in the success of the training. The writer's discovery that the music aptitude of students related to the cognitive process and was comprised of cognitive and perceptual processes was crucial in establishing direction.

(3) The mechanics of note reading should be presented in a melodic and linear pattern, rather than in an intervalic and vertical presentation.

(4) Occasional rote learning should be used. It is all right to let the students know what the intervals or phrases sound like as they read the written score. But, the instructor must also identify those pitches to the students. Do not teach the song, teach music. There is a difference.

(5) The instructor should move the rehearsal at a comfortable rate for individual learning. Pace is important for maintaining class interest and for the flow of information. Just as in choral singing, every song has one, perfect tempo. The instructor should find a comfortable, but challenging speed, and teach at that tempo.

(6) Students should practice tonal-rhythmic exercises to enhance short-term music memory for both pitch and rhythm.

(7) If reading is done using syllabic tones, the reading process should have greater speed.

(8) The teacher should interact with intensity and with a positive personality. Class management may hinge on the relationship that is built between the students and the teacher. The instructor's daily enthusiastic expectations for the class are as important as class preparation.

(9) Verbalizing daily objectives and expectations to the students should assist in providing for good class management. To motivate students to achieve, individual and group goals should be presented to students in such a way that allows a shared vision among members of the choir.

The writer, who also served as the instructor for this project, has had nationally noteworthy choirs over the years. But, it was very evident by midway through the implementation that if one taught choristers to be musicians, the singers would teach themselves to critically perform music. A question to ask each student at the beginning of the next school year is, "Do you simply wish to be a singer, or do you want to be a musician who can sing?" There is a great difference.

Dissemination

An outline of the results of this approach to sight-reading will be sent to my colleagues. A copy of the practicum report will be sent to the president of the state choral directors' association for review and consideration for a series in the state newsletter (journal). The state newsletter is disseminated across the United States to state choral-music presidents as well as to state newsletter editors for inclusion in their publications. The writer intends to submit a proposal to the state music convention committee to allow the writer to present the results of the study in as a choral-music session.

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APPENDIX A

1982-1993 SAMPLE ARIZONA TESTING INSTRUMENTS

1990 ALL-STATE SIGHTREADING

SINGLE-LINE

EXERCISE 1

EXERCISE 2

EXERCISE 3

1990 ALL-STATE SIGHTREADING

BLOCK & CONTRAPUNTAL

5 6 7 8 9 10
al - le - lu, al - le - lu - ia,
al - le - lu, al - le - lu - ia,
al - le - lu, al - le - lu - ia,
al - le - lu, al - le - lu - ia,
11 12 13 14
al - le - lu - ia, al - le - lu - ia,
al - le - lu - ia, al - le -
al - le - lu - ia,
al - le - lu - ia,

15 16 17 18 19
al - le - lu - ia, al - le - lu - ia, al - le - lu - ia,
lu - - ia, al - le - lu - ia, al - le - lu - ia,
al - le - lu - ia, al - le - lu, al - le - lu - ia, al - le -
al - le - lu - ia, al - le - lu, al - le - lu - ia,
20 21 22 23 24 25
al - le - lu, al - - le - lu - ia!
al - le - lu - ia, al - le - - lu - ia!
lu - ia, al - le - lu - ia, al - le - - lu - ia!
al - le - lu - - ia, al - le - - lu - ia!

1992 All-State Choir Audition

Single-line Sightreading

1

2

3

1992 All-State Choir Audition

Block and Contrapuntal Exercise

13 14 15 16 17 18
lu - ia. Al - le - lu - ia, Al - le - lu - ia.
lu - ia. Al - le - lu - ia, Al - le - lu - ia.
8 lu - ia. Al - le - lu - ia, Al-le-lu-ia. Al - le - lu - ia.
19 20 21 22 23 24 25
Al - le - lu - ia, Al-le - lu - ia, Al - le - lu - ia!
Al - le - lu - ia, Al - le - lu - ia, Al - le - lu - ia!
3 Al - le - lu - ia. Al - le - lu - ia, Al - le - lu - ia!
Al - le - lu - ia.

1992 All-State Block and Contrapuntal Exercise - page two

APPENDIX B

SURVEY OF GOALS AND ACTIVITIES FOR THE CHOIR

Appendix B

Survey of Goals and Activities for the Choir

The writer requested that each student list goals and activities for the class. One hundred thirty-three students participated. The following results indicated the number of students for each category who marked a concern for that particular goal or activity.

Improve sight-reading skills	115
Do a Tour	102
Learn more classical music	87
Have successful fund raisers	66
Do more festivals	45
Do a pop concert	33
Do more pop songs	24
Have more students do solos	13
Sing more barbershop	9
Have a show choir class	5

APPENDIX C

DISTRICT JUNIOR HIGH CHOIR DIRECTORS' INTERVIEWS

Appendix C

Statements From District Junior High Choir Directors

The school district employs one senior high school choir director (the writer), and three junior high school choir directors. The writer asked the three junior high school directors for comments relevant to sight-reading skills.

QUESTION: Do you believe that a problem currently exists in the training of secondary choral music students in the area of sight-reading?

Teacher A: There is a wide range of ability within the classes I teach. We try to do sight singing every day. However, in the advanced classes where we should spend more time reading, we sometimes let it slide due to the literature that we must learn for performance. We have not had any ninth-grade students make All-State Choir in over five years. Our sight-reading scores are always low. Yes, there is a curriculum problem with scheduling sight-reading, but the problems begin at the elementary level.

Follow up response: I work with all students, even those with low skill development. It is part of my teaching. We use a standard sight-reading program, but our students still fail at the 9th grade level (14 years of age) in the All-State selection process.

Teacher B: I teach sight reading everyday to my students. It is part of the warm ups that we do. We placed two students in Regional Choir this year, but none in All-State Choir. We should be doing more in assessing their skills during the year, but time is a problem.

Follow up response: I spend five minutes a day in rehearsal to teach reading. That should be sufficient, but it seems that the 9th grade class develops at very different rates. Some succeed, others do not. What else can I do?

Teacher C: It is difficult to manage to squeeze sight reading into the short time that I have with the choir. We spend most of the time working on songs and working on solos for Solo and Ensemble Festival.

Follow up response: We do sight reading two times a week. Some 9th graders are very successful, but most are not.

APPENDIX D

STUDENT INTERVIEWS

Appendix D

Student Interviews

The writer interviewed five advanced vocal music students currently in the high school honor choir. They were asked the identical questions.

QUESTION #1: Do you feel that there is a sight-reading problem for the members in our choir?

QUESTION #2: What are the indicators that there is a problem?

Student A:

Question #1: Yes.

Question #2: The choir is better than it has been in the past from what I hear. But, there are too many kids not working hard enough.

Student B:

Question #1: Yes.

Question #2: We don't spend enough time on it in class. Some singers are pretty good, but more choir students should be doing better.

Student C:

Question #1: Absolutely.

Question #2: The choir guys always do a lousy job in Regional auditions.

Student D:

Question #1: Yes.

Question #2: We should have more of us make it into All-State.

Student E:

Question #1: No question about it. Yes.

Question #2: We go over simple things too many times.

APPENDIX E

HIGH SCHOOL REPORT OF TOP READING CHOIRS IN STATE IN 1994

Appendix E

High School Report of Top Reading Choirs in State in 1994
Using an Interview Format

High School No. 1

Choir department size:	175
Number in All-State	15
Number of students who made All-State Choir who are taking private voice lessons:	9
Estimated per cent of students with piano background:	30%
Uses hand signals in class for sight-reading study:	yes
Number of times per week teaching of sight reading:	5
Approximate minutes given for teaching sight reading per class period:	5
Primary method of teaching:	Melodic X Intervalic ___
Use block harmony exercises:	Once a week
Use of rhythm in daily exercises:	yes, twice a week

Page 2 of Appendix E

High School No. 2

Choir department size:	200
Number in All-State	25
Number of students who made All-State Choir who are taking private voice lessons:	14
Estimated per cent of students with piano background:	30%
Uses hand signals in class for sight-reading study:	no
Number of times per week teaching of sight reading:	5
Approximate minutes given for teaching sight reading per class period:	5
Primary method of teaching:	Melodic X Intervalic ___
Use block harmony exercises:	Twice a month
Use of rhythm in daily exercises:	no

Page 3 of Appendix E

High School No. 3

Choir department size:	270
Number in All-State	15
Number of students who made All-State Choir who are taking private voice lessons:	8
Estimated per cent of students with piano background:	33%
Uses hand signals in class for sight-reading study:	no
Number of times per week teaching of sight reading:	5
Approximate minutes given for teaching sight reading per class period:	5
Primary method of teaching:	Melodic X Intervalic ___
Use block harmony exercises:	Once a week
Use of rhythm in daily exercises:	no

APPENDIX F

ALL-STATE AUDITION RAW DATA AND SCHOOL LISTING

ALL-STATE AUDITION RAW DATA AND SCHOOL LISTING

Schools Represented 86	Soprano	Alto	Tenor	Bass
Total Audition	155	152	137	157
High Solo	60	60	57	60
Low Solo	31	37	38	38
Average Solo	46	48	48	52
High Sight Reading	40	40	35	39
Low Sight Reading	3	6	1	0
Average Sight Reading	27	23	18	14
High Total Score	98	96	86	95
Low Total Score	46	46	43	49

1994 All-State Choir

Schools Represented 51	Soprano	Alto	Tenor	Bass
Total Selected	50	51	50	50
High Solo	60	60	56	59
Low Solo	41	40	44	46
Average	52	52	50	55
High Sight Reading	40	40	35	39
Low Sight Reading	23	18	16	19
Average Sight Reading	33	31	26	28
High Total Score	98	96	86	95
Low Total Score	78	77	68	77
Average Total Score	85	82	76	83

APPENDIX G

STUDENTS' INDIVIDUAL MONTHLY SCORES

Appendix G

Students' Individual Monthly Scores

Student	Pretest	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Increase
1	3	6	12	10	14	12	15	12
2	3	9	11	15	13	13	16	13
3	24	35	32	38	37	38	38	14
4	6	14	14	18	20	18	21	15
5	4	10	8	12	16	15	18	14
6	6	10	12	13	13	16	15	10
7	6	9	11	9	14	13	14	8
8	3	7	16	20	21	22	24	21
9	3	7	7	11	11	12	14	11
10	6	12	15	19	18	20	22	16
11	6	12	13	17	17	20	19	14
12	3	8	8	10	13	14	14	11
13	10	15	18	21	22	24	25	15
14	5	9	11	15	17	14	18	13
15	7	10	9	11	17	13	16	9

Student	Pretest	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Increase
16	10	16	21	26	29	28	31	21
17	8	13	18	17	20	23	24	16
18	23	27	30	33	36	35	37	14
19	6	8	11	15	17	19	17	13
20	9	14	13	17	23	22	26	17
21	13	16	20	22	28	32	34	21
22	13	22	25	29	28	30	36	23
23	5	15	17	23	25	31	32	27
24	6	12	15	14	19	17	20	14
25	11	18	20	26	25	27	30	19
26	4	14	15	19	21	26	27	23
27	3	10	11	14	15	18	17	15
28	6	10	13	14	16	19	23	17
29	16	25	27	32	33	29	34	18
30	9	16	21	27	31	32	36	27
31	7	9	15	12	16	18	21	14
32	20	26	21	29	28	30	33	13

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2 OF 2

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Student	Pretest	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Increase
33	3	11	13	16	20	17	22	19
34	18	24	30	28	33	32	37	19
35	23	27	28	31	32	37	33	14
36	10	13	18	22	28	25	28	18
37	30	35	33	37	36	39	37	9
38	11	12	10	15	17	22	21	11
39	6	8	11	10	12	14	14	8
40	21	21	22	27	25	29	32	11
41	24	35	38	36	33	40	38	16
42	10	8	12	13	11	14	13	4
43	11	10	14	14	16	15	18	7
44	6	8	12	10	17	12	14	8
45	12	11	14	16	16	20	19	8
46	11	15	22	18	23	25	22	14
47	16	19	18	24	22	26	26	10
48	6	9	10	13	10	12	15	9
49	6	7	11	9	9	13	12	7

Student	Pretest	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Increase
50	4	8	12	10	15	16	16	12
51	18	27	33	32	36	35	35	17
52	29	33	34	32	36	35	36	7
53	24	28	26	30	28	30	30	6
54	23	31	33	32	38	38	38	15
55	10	16	19	25	24	27	29	19
56	15	18	24	24	25	30	28	15
57	5	10	19	24	23	23	26	21
58	10	20	25	26	23	27	28	18
59	12	14	20	22	19	24	23	12
60	7	11	14	13	17	22	19	15
61	9	11	16	15	20	19	21	12
62	17	22	27	25	32	32	33	16
63	5	13	15	14	19	22	20	17
64	10	14	16	18	24	28	22	18
65	12	17	17	16	23	22	28	16
66	23	23	29	28	26	32	30	9

Student	Pretest	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Increase
67	23	26	35	34	34	37	38	15
68	17	20	23	25	29	27	31	14
69	28	27	29	31	31	34	34	6
70	22	23	28	29	32	34	34	12
71	5	6	10	9	11	12	12	7
72	10	14	13	16	13	19	19	9
73	9	14	17	19	22	20	20	11
74	25	36	32	37	36	36	35	11
75	8	11	10	13	14	15	14	7
76	9	9	11	13	12	11	14	5
77	24	30	34	35	33	35	37	13
78	23	21	26	27	25	31	29	8
79	14	21	28	26	29	30	32	18
80	6	9	9	8	11	13	10	7
81	9	12	10	14	13	13	15	6
82	5	12	12	15	13	15	13	10
83	11	16	15	17	19	18	19	8

Student	Pretest	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Increase
84	13	15	20	21	23	19	23	10
85	18	20	24	28	23	27	28	10
86	6	6	8	12	10	14	11	8
87	16	23	25	22	20	25	22	9
88	3	6	5	9	8	8	10	7
89	18	23	20	22	26	26	24	8
90	7	12	10	12	15	16	15	9
91	8	12	11	10	13	12	14	6
92	5	7	8	12	10	12	8	7
93	13	17	18	16	16	19	22	9
94	18	24	30	28	33	32	37	19
95	3	10	12	15	17	14	17	14
96	8	10	8	12	13	17	19	11
97	16	19	21	18	23	23	24	8
98	6	8	10	14	13	12	15	9
99	12	16	19	22	22	25	24	13
100	18	26	25	24	26	30	29	12

Student	Pretest	Test 2	Test 3	Test 4	Test 5	Test 6	Test 7	Increase
101	8	10	11	15	16	18	16	10
102	10	16	19	13	20	20	21	11
103	6	12	13	13	15	17	16	11

APPENDIX H

INDIVIDUAL TESTING INSTRUMENT SCORING FORM

Voice Classification: S1 S2 A1 A2 T1 T2 B1 B2 _____

Sightreading:

1. Three Single Lines (5 measures, 1 point each)

   a ☐ b ☐ c ☐ **15** ☐

2. Block and Contrapuntal Exercises (25 measures, 1 point each)

Judges comments concerning sight singing:

☐ Incorrect starting pitch ☐ Incorrect intervals ☐ Incorrect rhythms **25** ☐

☐ Interruption of metrical flow (pausing at barlines)

☐ Additional factors/comments: _____ **Total Sightreading Points** ☐

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